

## CLAIMS

1. A storage device available for increasing storage capacity,  
comprising a controller and at least a solid-state storage  
medium; said controller having a system interface connected  
to external system end, a microprocessor processing system  
instructions, and a memory interface communicating with said  
solid-state storage medium; wherein: said controller has a  
data compression module between said system interface and  
said memory interface, and the data compression module  
compresses the original data transferred from the system  
interface in 1/N compression ratio under the control of the  
microprocessor and then stores the compressed data into said  
solid-state storage medium via said memory interface.
2. A storage device available for increasing storage capacity  
according to claim 1, wherein said storage device has a data  
decompression module between said system interface and said  
memory interface; said decompression module, under the  
control of said microprocessor, retrieves compressed data  
stored in said solid-state storage medium and decompresses  
it to original data to output.
3. A storage device available for increasing storage capacity  
according to claim 1 or 2, wherein said storage device has  
a first data cache electrically connected to said system  
interface, said microprocessor, said data compression module  
and said data decompression module.
4. A storage device available for increasing storage capacity  
according to claim 1 or 2, wherein said controller has a  
second data cache electrically connected to said memory  
interface, said microprocessor, said data compression module  
and said data decompression module.

5. A storage device available for increasing storage capacity according to claim 1 or 2, wherein said data compression module and said data decompression module are in said controller.

5